Putting future in play: Games as door to new worlds - Virtual reality is `Newton in a box' to founder of software firm

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If you yearn to pilot an aircraft, play in the NCAA basketball tournament, or demolish robots, Chris Weaver can make it happen:He uses virtual-reality software to create the action in a personal computer.

From three people at a kitchen table planning how to create a software firm to more than a dozen people "capturing Newton in a box," as Mr. Weaver describes what his company does, Bethesda Softworks has become the nation's fifth-largest private personal-computer entertainment software company.

The company sold more than $10 million in entertainment software last year, and Mr. Weaver predicts that's just the beginning in an expected billion-dollar industry.

"We're dancing mice among the elephants," Mr. Weaver says of his small company.

Virtual-reality software provides graphics lifelike enough to be used as training models for surgeons or as less-expensive simulators for military weapons systems. Mr. Weaver uses the technology to create sports and role-playing games.

"`Virtual reality' is when you create a synthetic environment that you can interact with on a first-person perspective," Mr. Weaver explains.

Softworks' software differs from typical virtual-reality devices because no headgear or electronic gloves are required to manipulate the images on the screen. Graphics and sound are activated by a keyboard or joy stick connected to a desktop computer to create the illusion of realistic movement.

"Entertainment is not necessarily trivial," Mr. Weaver says. "You have the ability to capture your imagination and concentration. Role-playing games allow a person to integrate with their own imagination."

Mr. Weaver, 41, lives in a world of logic, imagination and ambition. Thumbing through a book of blueprints for the fabled "Star Trek" spaceship Enterprise, he seems capable of assembling it, given the resources. He's married to Dr. Constance Bohon, chief of gynecology at the Columbia Hospital for Women; they have a 2-month-old son, Isaac (who is not named for Newton).

Mr. Weaver - slim, dark-haired and looking more like a well-groomed CEO than a mad scientist or computer nerd - constructed his first computer at age 12. With advanced degrees in physics and Japanese language, he was a vice president of technology research at ABC in New York by age 26. Mr. Weaver later worked full time for a congressional subcommittee on communications before forming his own company in 1979.

While working on projects such as defense-tech simulations or an optical scanner for the visually impaired, he decided to try inventing "physics in a box. You create a real world within man-made boundaries," he says.

The first was "Gridiron" in 1987, a football game that Mr. Weaver says "put us on the map. People are still playing it." "Wayne Gretzky Hockey," now in its third version, won the 1988 Software Publishers Association's "Codie" award for best sports simulation.

Mr. Weaver says he knew nothing about hockey but made notes at games and received input from Washington Capitals players and coaches to devise the game's strategies and player movements.

Recent releases that sell for $60 to $70 include "The Elder Scrolls: Arena"; "NCAA: Road to the Final Four II"; "The Terminator: Rampage," which sold 30,000 units in its first week; and "Delta-V," which was named Best of Show at the Consumer Electronics Show in Chicago last year. The CES is the electronics industry's highest-profile event.

"The Elder Scrolls: Arena" could be Mr. Weaver's breakthrough. Through a first-person perspective, an adventurer creates thousands of scenarios in more than 18 levels of on-screen platforms. The game encompasses more than 400 cities, caverns and crypts and includes rain, snow, wind and darkness.

"Quite simply, it's simply the most captivating, well-designed, realistic world available on home computers," wrote editor Johnny Wilson in Computer Gaming World magazine, which devoted its December cover to the game.

Says Mr. Weaver: "When we set out to create [`The Elder Scrolls'], we looked at every major computer role-playing game created over the past 10 years. ... We adapted the best elements of those we respected and brought them together to produce a truly comprehensive and innovative role-playing product."

Mr. Weaver says games such as "The Elder Scrolls" teach social interaction.

"You can do anything you want, but suffer the consequences and live for another day," he says. "How to get along with a guard is microcosmic for the way of getting along with people. Simulation allows us to learn and be more socially vibrant. It's entertainment that teaches you. You can relive life. I wish we could do that for [humanity]."

Much recent ink has been devoted to computer games that are considered too violent for youth, but Mr. Weaver's games contain relatively little gore.

"You won't find anything that rips your heart out," he says. "That's not important to us. You'll find lots of violence against robots, but not people."

Perhaps the biggest challenge for Mr. Weaver has been making the games easy to play, even for the video-game novice.

Simplicity is important to his market: "In the `Delta-V,' most people want to strap in, fire up the engines and shoot things down," he says. And while the controls are simple, the technology that goes into the games is not. But Mr. Weaver says users don't need to know what makes the games work.

"There is no more complex device in homes than a color television, but not 1 percent can tell you how it works," but people enjoy them all the same, he says.

People may have fun and learn something while playing his games, but Mr. Weaver considers them just the beginning of virtual-reality technology.

"Society devalues space by people being so close together," he says. "[The game] allows people to recharge their batteries. We're going to change societal structure. There's no area that has as much effect as entertainment and edu-tainment."

Realistic video games give the users a virtual world of space, take them away from the pressures of reality, expand their imaginations and channel stress, Mr. Weaver says. As a result, he feels, people may seek more social interaction - as opposed to hiding out behind a joystick.

How far can virtual reality technology develop? Will we one day feel the bullets fired from attackers, smell the burning debris or be shaken by an earthquake?

"There is going to be a massive distance between the marketing hype and reality," Mr. Weaver says. "The technology has advanced to where engineers will be able to dramatically involve a variety of senses so users will occasionally lose their perception of their environment.

"Touch is easier because of the joysticks and other devices, so when you fire or hit something you will be able to feel it. Is `smell-a-vision' around the corner? No, but who'd want it?"

Mr. Weaver feels there are limits to the public's desire for virtual reality.

"In the next 20 years, will we sit in a mock theater and experience the atmosphere of Carnegie Hall?" he asks. "No, people won't want to go into a black sterile room and envision they're in Carnegie Hall. We will have theaters that involve movement and allow you to experience things that passive movie theaters don't now."

Can virtual reality become too realistic, allowing the user to become immersed in it?

"Virtual reality is no more dangerous than the electrical current that runs through my wall," Mr.

Weaver says. "It's only as good as the people who use it or create uses for it."

Those uses will extend into many professions for training purposes.

"You will be able to train students in anatomy," Mr. Weaver says. "You can examine organs and bodies in 3-D and try a surgical technique again and again without the patient's suffering.

"Car mechanics, engineers, TV repairmen and others will be able to be trained how to do things by people with advanced experience. Right now, how many of us can be taught by Nobel laureates?"

It can even become part of the future "information highway" for treating patients in isolated areas.

"One physician in an area not known for its medicine who has a difficult case can have someone from Johns Hopkins University examine their patient's images," Mr. Weaver says. "Medicine is a primary area where sophisticated data communications will be used for synthetic environment."

The only limit to virtual technology's advancement is the public's demand. Mr. Weaver says that tends to come slowly, mainly because of cost. Once items such as videocassette recorders and personal computers dropped dramatically in price, they became commonplace.

"Color television sets were considered a revolution in technology," he says. "But it took quite a while for them to be commonly used. Most of us from the 1950s and '60s remember only black-and-white television."

So finding general acceptance for virtual reality technology means simplifying it for those who aren't computer literate.

"You have to ask yourself, `Would I give this to my mother and father?" Mr. Weaver says. "If you would give it to someone in their 40s with no computer experience and trust they would use it, then you are beginning to approach a useful [technology]."

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